

## TWO NEW SPECIES OF THE ENDEMIC AUSTRALIAN GOBLIN SPIDER GENUS *CAVISTERNUM* (ARANEAE: OONOPIDAE) FROM QUEENSLAND

<sup>1,2</sup>BARBARA C. BAEHR and <sup>3</sup>MARK HARVEY

<sup>1</sup>Queensland Museum, P.O. Box 3300, South Brisbane, Qld 4101, Australia  
[BarbaraB@qm.qld.gov.au](mailto:BarbaraB@qm.qld.gov.au)

<sup>2</sup>CSER, School of Environmental and Life Sciences, University of Newcastle, Callaghan, NSW 2308, Australia

[Barbara.Baehr@newcastle.edu.au](mailto:Barbara.Baehr@newcastle.edu.au) (corresponding author)

<sup>3</sup>Western Australian Museum, Locked Bag 49, Welshpool DC, WA 6986, Australia.  
[mark.harvey@museum.wa.gov.au](mailto:mark.harvey@museum.wa.gov.au)

### Abstract

Two new species, *Cavisternum federicae* sp. nov. and *Cavisternum monteithi* sp. nov. are described, taking the number of species in this endemic Australian genus to 21 (Baehr *et al.* 2010). *C. federicae* sp. nov. is the first species collected in rainforest.

### Introduction

The Oonopidae is a megadiverse spider family with over 600 described species in 76 genera (Platnick 2010) and about 2500 expected species worldwide. These small spiders (0.5-4.0 mm), commonly known as goblin spiders, possess only 6 eyes and generally have an armour of abdominal scutae. They are quite common in most terrestrial habitats, in litter, under bark and even in forest canopy (Platnick and Dupérré 2009a, b). The goblin spider fauna is most diverse in the tropical and subtropical regions (Platnick and Dupérré 2010) but they also occur in high altitudes of the Himalayan Mountains (Baehr and Ubick in press).

Species of *Cavisternum* are united by the peculiar morphology of the male mouthparts and sternum. In particular, the sternum has a concave depression covered with clavate setae and the fangs are broadened at the tip (Baehr *et al.* 2010). The genus is found in tropical northern Australia and shows high endemism, with most species recorded from only a single location (Baehr *et al.* 2010). This paper is part of the world-wide revision of the family Oonopidae, conducted by the “Goblin Spider PBI” project (see <http://research.amnh.org/oonopidae/>). Spiders of this recently described genus have been found in pitfall trap samples, litter extractions and on bark. They occur over the northern part of Australia. The majority of locations from which these spiders were collected are generally low rainfall sites, with open woodland vegetation.

### Material and Methods

Specimens were examined using a LEICA MZ16A microscope. Photomicrographic images were produced using a Leica DFC 500 and the software program AutoMontage Pro Version 5.02. The description was generated with the aid of the PBI descriptive goblin spider database

mentioning only the differences to the genus description. Drawings are done from left palp. All measurements are in millimetres. Scales of drawings are 0.5 mm for habitus lateral and 0.1 mm for palps. Abbreviations are used in the text as follows: ALE, anterior lateral eyes; PLE, posterior lateral eyes; PME, posterior median eyes.

## Systematics

### Family Oonopidae Simon, 1890

#### *Cavisternum* Baehr, Harvey and Smith, 2010.

Type Species: *Cavisternum clavatum* Baehr, Harvey and Smith, 2010:

6-13; figs. 1, 4, 7, 26-83; map1.

Diagnosis: Males of this genus can easily be recognized and separated from all other oonopid genera by the concave sternum covered with clavate setae (Figs 2, 5) and the fangs with broadened tips.

#### *Cavisternum federicae* sp. nov.

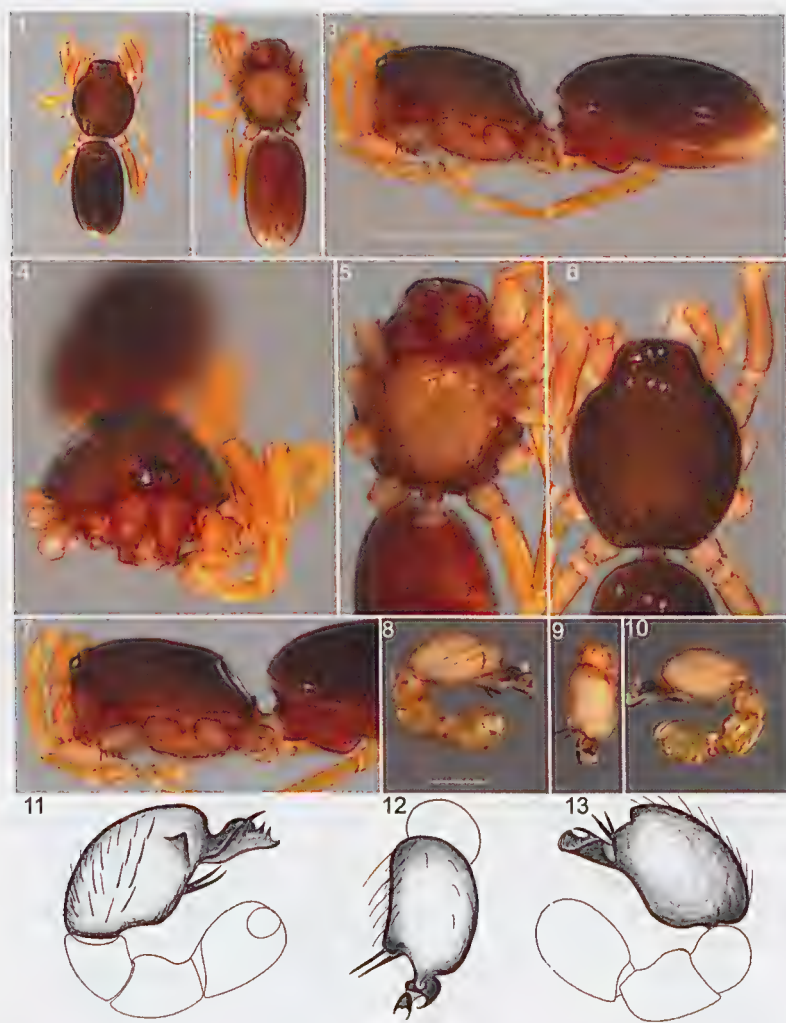
Figures 1-13, 27

*Holotype*: AUSTRALIA: Queensland, Capricorn Caves, campground, 100m rainforest, 23°26'S, 150°49'E, barkspray (15 April 2010, G. Monteith, F. Turco) (PBI\_OON 00023431), deposited in QM (S88300).

*Etymology*: The species name is an eponymous noun in the genitive case in honour of Dr Federica Turco, an extraordinary beetle expert who collected the holotype.

*Diagnosis*: Males resemble those of *C. rocheasterae* with median concavity occupying about 2/3 of sternal length, 2/3 of sternal width and epigastric scutum protruding but can be easily separated by the complex bulbal tip with a conductor consisting of two equally long prolateral projections and a complex folded embolus (Figs 8-13).

*Male*: Total length 1.20. Carapace, mouthparts and abdominal scutae red-brown, without any pattern (Figs 1-3), pars cephalica slightly elevated in lateral view (Fig. 7), carapace lateral margin with blunt denticles (Fig. 6). Clypeus margin slightly rebordered (Fig. 4), vertical in lateral view. Eyes ALE:0.045; PME:0.051; PLE:0.044, ALE circular, PME oval, PLE circular; posterior eye row straight from both above and front; ALE separated by their radius to diameter, ALE-PLE touching, PME touching for less than half their length, PLE-PME touching. Sternum, pale orange, uniform, not fused to carapace, median concavity occupying about 2/3 of sternal length, 2/3 of sternal width covered with field of clavate setae (Fig. 5). Chelicerae straight, anterior face unmodified; fang tip distally widened. Labium and endites much more heavily sclerotized than sternum. Endites anteromedian part strongly excavated with medially directed tooth-like projection. Abdomen cylindrical, rounded posteriorly. Epigastric scutum not extending far dorsal of pedicel.



**Figs 1-13.** *Cavisternum federicae* sp. nov., male (PBI\_OON\_23431): (1) Habitus, dorsal view; (2) Same, ventral view; (3) Same, lateral view; (4) Prosoma, frontal view; (5) Same, ventral view; (6) Same, dorsal view; (7) Same, lateral view; (8) Palp prolateral view; (9) Same, dorsal view; (10) Same, retrolateral view; (11) Palp (drawing) prolateral view; (12) Same, dorsal view; (13) Same, retrolateral view.

Scutae weakly sclerotized, covering full length of abdomen, no soft tissue visible from above, not fused to epigastric scutum, surface smooth. Postepigastric scutum covering nearly full of abdominal length. Legs yellow,

without colour pattern; patella plus tibia I shorter than carapace. Epigastric region with small sperm pore, strongly protruding extension between sperm pore and anterior spiracles. Palp proximal segments yellow; embolus dark, femur attaching to patella basally (Figs 8, 10, 11, 13); patella about as long as femur; cymbium square in dorsal view (Figs 9, 12), cymbium-bulb complex square with big additional cymbial prodistal tooth, bulbal tip with a conductor consisting of 2 spine-like prolateral projections, with a complex, folded embolus (Figs 11, 13).

*Female:* Unknown.

*Distribution:* Known only from the type locality in south east Queensland.

*Cavisternum monteithi*, new species

Figures 14-27

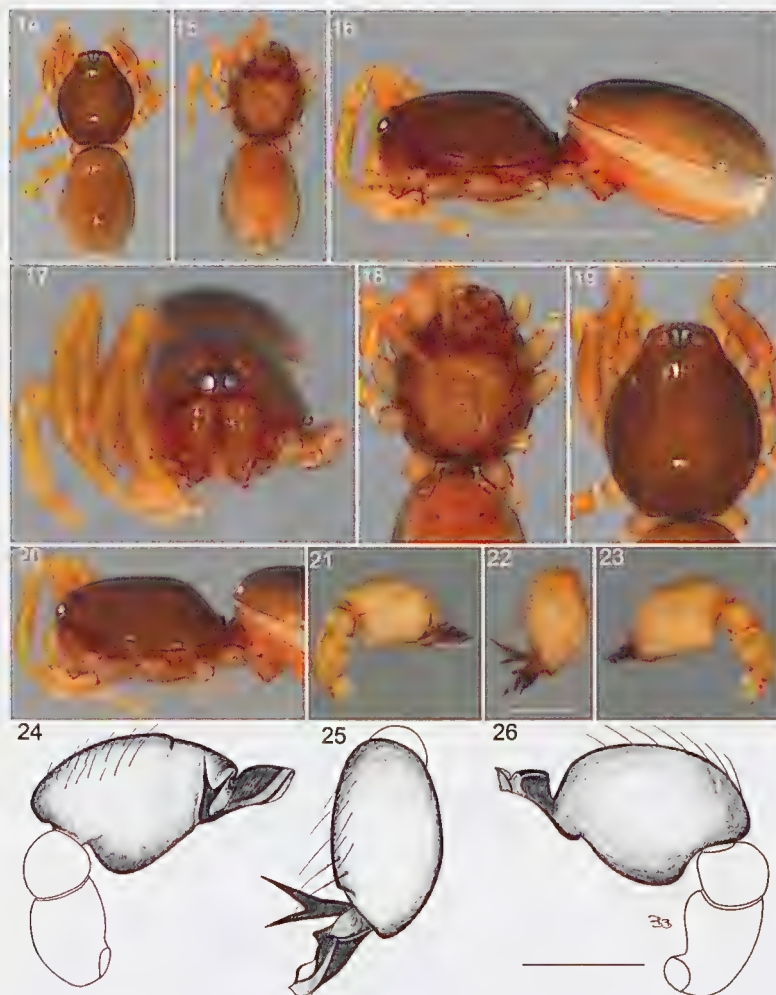
*Holotype:* AUSTRALIA: Queensland, Barakula SF. Stockyard Rd., 26°32'S, 150°44'E, barksprays (10 Feb. 2010, G. Monteith, F. Turco) (PBI\_OON 00023434), deposited in QM (S88459).

*Etymology:* The species name is an eponymous noun in the genitive case in honour of Dr. Geoff Monteith, former Senior Curator of the Queensland Museum and a tremendous collector of invertebrates who collected the holotype.

*Diagnosis:* Males resemble those of *C. rochesterae* in having a cymbial prodistal tooth but can be separated by the median concavity occupying about 3/4 of sternal length, 1/2 of sternal width, the strongly protruding epigastric scutum (Figs 15, 18) the complex bulbal tip with bifurcal conductor and curled embolus (Figs 21-26).

*Male:* Total length 1.17. Carapace and scutae brown, lateral margin without denticles; ALE:0.046; PME:0.048; PLE:0.041, ALE circular (Fig. 17), PME squared, PLE circular; posterior eye row straight from above (Fig. 19); ALE separated by less than their radius, ALE-PLE touching, PME touching throughout most of their length, PLE-PME touching. Sternum pale orange, with oval median concavity covering 3/4 of sternum length and 1/2 of sternum width (Fig. 18). Chelicerae, endites and labium yellow-brown. Endites distally excavated, anteromedian part deeply indented with tooth like projection medially. Abdomen ovoid (Fig. 14). Epigastric scutum strongly protruding (Figs 16, 20). Postepigastric scutum covering nearly full length of abdominal length (Fig. 15). Legs yellow, patella plus tibia I shorter than carapace (Fig. 20). Epigastric region with small, oval sperm pore; midway between sperm pore and anterior spiracles a strongly protruding extension (Fig. 18). Palpal femur attaching to patella subbasally (Fig. 21); patella about as long as femur; cymbium with prodistal knob (Fig. 25), bulb pear-shaped, bulbal tip with bifurcate conductor and curled embolus (Figs 24-26).





**Figs 14-26.** *Cavisternum monteithi* sp. nov., male (PBI\_OON\_23434): (14) Habitus, dorsal view; (15) Same, ventral view; (16) Same, lateral view; (17) Prosoma, frontal view; (18) Same, ventral view; (19) Same, dorsal view; (20) Same, lateral view; (21) Palp prolateral view; (22) Same, dorsal view; (23) Same, retrolateral view; (24) Palp (drawing) prolateral view; (25) Same, dorsal view; (26) Same, retrolateral view.

*Female*: Unknown.

*Distribution*: Known only from the type locality in south east Queensland.



**Fig. 27.** Distribution of *Cavisternum federicae* sp. nov. (circle) and *Cavisternum monteithi* sp. nov. (square) in Australia.

### Acknowledgements

This paper would not have been completed without the support of the National Science Foundation's PBI (Planetary Biodiversity Inventory) program provided through grant DEB - 0613754. We thank Federica Turco and Geoff Monteith for collecting the well preserved holotypes, Robert Raven and Owen Seeman (Queensland Museum, Brisbane, QM) for loan of the material and great support of the work.

### References

- BAEHR, B.C., HARVEY, M.S. and SMITH, H.M. 2010. The goblin spiders of the new endemic Australian genus *Cavisternum* (Araneae: Oonopidae). *American Museum Novitates* **3684**: 1–40.
- BAEHR, B.C., and UBICK, D. in press. The goblin spiders of the Asian genus *Camptoscaphiella* Caporiacco 1934 (Araneae: Oonopidae). *American Museum Novitates*

PLATNICK, N.I. and DUPÉRRÉ, N. 2009a. The American goblin spiders of the new genus *Escaphiella* (Araneae, Oonopidae). *Bulletin of the American Museum of Natural History* **328**: 1–151.

PLATNICK, N.I. and DUPÉRRÉ, N. 2009b. The goblin spider genera *Opopaea* and *Epectris* (Araneae, Oonopidae) in the New World. *American Museum Novitates* **3649**: 1–43.

PLATNICK, N.I. and DUPÉRRÉ, N. 2010. The goblin spiders genus *Scaphiella* (Araneae, Oonopidae). *Bulletin of the American Museum of Natural History* **332**: 1–156.